



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,295	12/21/2001	Jonathan Weintroub	ENDP-002PUS	9747

22494 7590 06/15/2005

DALY, CROWLEY, MOFFORD & DURKEE, LLP  
SUITE 301A  
354A TURNPIKE STREET  
CANTON, MA 02021-2714

EXAMINER
----------

HERNANDEZ, NELSON D

ART UNIT	PAPER NUMBER
----------	--------------

2612

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/034,295

Applicant(s)

WEINTROUB ET AL.

Examiner

Nelson D. Hernandez

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/26/2002</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. **Claim 1** is rejected under 35 U.S.C. 102(e) as being anticipated by Katsuki, US Patent 6,798,447 B1.

**Regarding claim 1**, Katsuki discloses a method comprising: capturing at least a portion of an image (Using CCD in fig. 2: 31) in a field of view to provide a digital image; digitally compressing the digital image (Using MPEG Video Processor shown in fig. 2: 44) to provide a compressed file having a file size; and providing a focus accuracy parameter, the focus accuracy parameter (See step S23 in fig. 8) derived from the file size of the compressed file (See step S22 in fig. 8) (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2612

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 2, 5, 7-10, 12, 13 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuki, US Patent 6,798,447 B1 in view of Takemoto, US Patent 5,065,246.

**Regarding claim 2**, Katsuki does not explicitly disclose determining from the focus accuracy parameter, the distance required to move a lens to bring the lens into focus.

However, Takemoto teaches a method of determining from the image data a focus accuracy parameter use to determine a distance needed to bring the image into focus so as to obtain a more detailed image (See col. 2, lines 8-53; col. 3, line 33 – col. 4, line 24).

Therefore, taking the combined teaching of Katsuki in view of Takemoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katsuki by determining from the focus accuracy parameter, the distance required to move a lens to bring the lens into focus. The motivation to do so would help to improve the focusing operation of the system since the operation is carried out in the operation means and the number of parts required for the automatic focusing is reduced as suggested by Takemoto (Col. 2, lines 25-53).

**Regarding claim 5**, Katsuki discloses a lens focusing system comprising: a lens (Fig. 2: 11) in a field of view of an image detector (Fig. 2: 31); a mechanism to move the lens (Fig. 2: 13); a compression engine (MPEG Video Processor shown in fig. 2: 44),

Art Unit: 2612

responsive to the image detector, to provide a compressed data file; and a digital processor (Fig. 2: 42) to compare the size of each compressed data file and to provide a control signal to the motor to move the lens to a position to lower the size of the of the compressed image (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19) but does not explicitly disclose moving the lens to a position that creates the largest compressed data file.

However, moving the lens to create the largest image data or compressed image data is well known in the art as taught by Takemoto who teaches a focusing system that perform focus adjustment based on the compressed image data so as to obtain a more detailed image, (Is expected that by obtaining a more detailed image, a larger compressed data file is obtained) (See col. 2, lines 8-53; col. 3, line 33 – col. 4, line 24).

Therefore, taking the combined teaching of Katsuki in view of Takemoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katsuki by moving the lens to a position that creates the largest compressed data file. The motivation to do so would help to improve the focusing operation of the system since the operation is carried out in the operation means and the number of parts required for the automatic focusing is reduced as suggested by Takemoto (Col. 2, lines 25-53).

**Regarding claim 7**, the combined teaching of Katsuki in view of Takemoto as applied to claim 5 teaches a method for the system as claimed. Therefore, grounds for rejecting claim 5 apply here.

**Regarding claim 8**, the combined teaching of Katsuki in view of Takemoto does not teach that the size signal is a digital word indicative of the size of the compressed digital image.

However, Official Notice is taken that the signal used to represent the size of the image is relative to the size of the image data. (If is a small image data size, the signal can be represented with a digital word or less; if is a large amount of data, the signal may need more that a word to represent the size of the image data) and, it would have been obvious to one of ordinary skill in the art at the time the invention was made to represent the size of the image data with a particular amount of bits (i.e. a word) with the motivation of accelerate the process of focusing by processing less amount of data when reading the image data size.

**Regarding claim 9**, the combined teaching of Katsuki in view of Takemoto does not teach that the compressed digital signal is a JPEG compressed image.

However, Official Notice is taken that compressing image using JPEG standard is notoriously well known in the art at the time the invention was made and would have been obvious to one of ordinary skill in the art to use JPEG standard to compress the image data with the motivation of reducing the amount of data to be read by the system so as to reduce the amount of time performing the focusing process.

**Regarding claim 10**, the combined teaching of Katsuki in view of Takemoto teaches that the detector comprises a charge coupled device (See Katsuki, fig. 2: 31) having a plurality of light receiving pixels and color filters provided in front of said light receiving pixels, each of said color filters transmitting one of said plurality of color

Art Unit: 2612

components (Taught by Takemoto when teaching processing R-Y and B-Y signals, having color filters provided in front of the sensor is necessitated so as to obtain said color signals) (See Katsuki, col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19; Takemoto, col. 10, lines 6-25).

**Regarding claims 12**, the combined teaching of Katsuki in view of Takemoto teaches the controller initially moves the lens in a predetermined direction by a predetermined amount (Katsuki teaches moving the lens several times in the same direction until the amount of compressed image data reaches a predetermined amount; col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19).

**Regarding claim 13**, grounds for rejecting claim 12 apply here.

**Regarding claim 19**, the combined teaching of Katsuki in view of Takemoto as applied to claims 5 and 7 teaches a method and system comprising the same limitations as claimed. Therefore, grounds for rejecting claims 5 and 7 apply here.

5. **Claims 3, 4, 6, 15, 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuki, US Patent 6,798,447 B1 in view of Owada, US 2002/0006281 A1.

**Regarding claim 3**, Katsuki does not explicitly disclose determining from the focus accuracy parameter, the range to an object in the image.

However, Owada discloses a focus detection device wherein two images taken at different focus positions are compared so as to determine the best focus position where the image acquires the highest contrast, also teaches measuring distance from the object being photographed to the image sensor using the same so as to obtain high

contrast object image. (Page 3, ¶ 0036-0037 and ¶0048-0050; page 4, ¶ 0057-0063)  
(By obtaining an image with higher contrast, a larger data file size is obtained).

Therefore, taking the combined teaching of Katsuki in view of Owada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katsuki by determining from the focus accuracy parameter, the range to an object in the image. The motivation to do so would help to perform focus detection from a high contrast object images, irrespective of color of an object as suggested by Owada (Page 2, ¶ 0019-0020).

**Regarding claim 4**, Katsuki discloses a method of focusing a lens (Fig. 2: 11) comprising: capturing a image (Using CCD in fig. 2: 31) and digitally compressing and storing the data; comparing the size of the data file image and moving the lens in the direction of the position to lower the size of the of the compressed image (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19) but does not explicitly disclose extracting a second focus accuracy parameter, the second focus accuracy parameter indicative of the focus accuracy of the second image; and comparing the focus accuracy parameter with the second focus accuracy parameter to determine which digital image is best focused.

However, Owada discloses a focus detection device wherein two images taken at different focus positions are compared so as to determine the best focus position where the image acquires the highest contrast (Page 3, ¶ 0048-0050; page 4, ¶ 0057) (By obtaining an image with higher contrast, a larger data file size is obtained).



Therefore, taking the combined teaching of Katsuki in view of Owada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katsuki by comparing two images taken at different focus positions so as to determine the best focus position where the image acquires the highest file size. The motivation to do so would help to perform focus detection from a high contrast object images at all times, irrespective of color of an object as suggested by Owada (Page 2, ¶ 0019-0020).

**Regarding claim 6**, Katsuki discloses a method of focusing a lens (Fig. 2: 11) comprising: capturing a image (Using CCD in fig. 2: 31) and digitally compressing and storing the data; comparing the size of the data file image and moving the lens in the direction of the position to lower the size of the of the compressed image (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19) but does not explicitly disclose moving the lens to another position; capturing a second image and digitally compressing and storing the data; and comparing the size of the data file of the first image with the size of the data file of the second image and moving the lens in the direction of the position providing the larger file size.

However, Owada discloses a focus detection device wherein two images taken at different focus positions are compared so as to determine the best focus position where the image acquires the highest contrast (Page 3, ¶ 0048-0050; page 4, ¶ 0057) (By obtaining an image with higher contrast, a larger data file size is obtained).

Therefore, taking the combined teaching of Katsuki in view of Owada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention

Art Unit: 2612

was made to modify Katsuki by comparing two images taken at different focus positions so as to determine the best focus position where the image acquires the highest file size. The motivation to do so would help to perform focus detection from a high contrast object images at all times, irrespective of color of an object as suggested by Oawada (Page 2, ¶ 0019-0020).

**Regarding claim 15**, Katsuki discloses a method of locating a lens (Fig. 2: 11) in a unit under test comprising: placing a test target a fixed distance from the unit under test (object being photographed); moving the lens to one of a plurality of positions and capturing through the lens and digitally compressing a digital image of the test target to provide a compressed image (Using MPEG Video Processor shown in fig. 2: 44) file having a file size; moving the lens to another one of a plurality of positions and capturing through the lens and digitally compressing a digital image of the test target to provide a compressed image file having a file size until the file size reaches a predetermined amount; and fixing the lens within the unit under test at the position that provides said predetermined amount (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19) but does not explicitly disclose moving the lens to another one of a plurality of positions and capturing through the lens and digitally compressing a digital image of the test target to provide a compressed image file having a file size until the file size is maximized; and fixing the lens within the unit under test at the position that provides the maximum file size.

However, Owada discloses a focus detection device wherein two images taken at different focus positions are compared so as to determine the best focus position

where the image acquires the highest contrast (Page 3, ¶ 0048-0050; page 4, ¶ 0057)  
(By obtaining an image with higher contrast, a larger data file size is obtained).

Therefore, taking the combined teaching of Katsuki in view of Owada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katsuki by comparing two images taken at different focus positions so as to determine the best focus position where the image acquires the highest file size. The motivation to do so would help to perform focus detection from a high contrast object images at all times, irrespective of color of an object as suggested by Owada (Page 2, ¶ 0019-0020).

**Regarding claim 17**, the combined teaching of Katsuki in view of Owada as applied to claim 15 teaches the method as claimed. Therefore, grounds for rejecting claim 16 apply here.

**Regarding claim 18**, the combined teaching of Katsuki in view of Owada does not teach that the compressed digital signal is a JPEG compressed image.

However, Official Notice is taken that compressing image using JPEG standard is notoriously well known in the art at the time the invention was made and would have been obvious to one of ordinary skill in the art to use JPEG standard to compress the image data with the motivation of reducing the amount of data to be read by the system so as to reduce the amount of time performing the focusing process.

6. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuki, US Patent 6,798,447 B1 in view of Takemoto, US Patent 5,065,246 and further in view of Owada, US 2002/0006281 A1.

**Regarding claim 11**, the combined teaching of Katsuki in view of Takemoto does not teach that the controller that controls said driver (See Takemoto, fig. 2: 24) to locate said lens where the size signal becomes greatest by moving said lens along the optical axis to a plurality of lens positions and comparing between values of said size signal measured at said lens positions.

However, Owada discloses a focus detection device wherein two images taken at different focus positions are compared so as to determine the best focus position where the image acquires the highest contrast (Page 3, ¶ 0048-0050; page 4, ¶ 0057) (By obtaining an image with higher contrast, a larger data file size is obtained).

Therefore, taking the combined teaching of Katsuki in view of Takemoto and further in view of Owada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system by comparing two images taken at different focus positions so as to determine the best focus position where the image acquires the highest file size. The motivation to do so would help to perform focus detection from a high contrast object images at all times, irrespective of color of an object as suggested by Owada (Page 2, ¶ 0019-0020).

**Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuki, US Patent 6,798,447 B1 in view of Takemoto, US Patent 5,065,246 and further in view of Morimoto, US Patent 6,487,366 B1.

**Regarding claim 14**, the combined teaching of Katsuki in view of Takemoto does not teach that a numerical function maximizing technique is used to determine the greatest size signal.

However, Morimoto teaches a system (See figs. 13 and 14) for compressing image data based by changing the position of the lens system to defocus the image for representing a selected numerical image compression ratio (i.e. a predefined table) (Col. 4, lines 7-67; col. 5, lines 1-55; col. 7, lines 41-56; col. 8, lines 34-63).

Therefore, taking the combined teaching of Katsuki in view of Takemoto and further in view of Morimoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a numerical function maximizing technique is used to determine the amount of data of the size signal after compression. The motivation to do so would help the user to obtain a desired amount of compressed data size from the captured image as suggested by Morimoto (Col. 2, lines 27-60).

7. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki, US Patent 5,138,360 in view of Novak, US 2002/0141658 A1 and further in view of Katsuki, US Patent 6,798,447 B1.

**Regarding claim 16**, Yamasaki discloses a method of locating a sensor (See fig. 5) relative to a lens (Fig. 3B: 12) in a unit under test comprising; replicating a test target over regions of an object plane as it passes through the lens; capturing an image of the test target with the sensor and segmenting the image into regions corresponding to the regions of the object plane; and adjusting the location of the sensor relative to the lens to set axial and tilt adjustments (See fig. 5) such that the focus to the image for each region is maximized (By performing focusing the captured image becomes more detailed resulting in a larger image file) (Col. 6, lines 45-67; col. 7, lines 15-54, col. 8,

lines 13-54) but does not explicitly disclose compressing a digital image corresponding to each region and recording the relative size of the compressed image for each region and adjusting the location of the sensor relative to the lens to set axial and tilt adjustments such that the relative size of the compressed image for each region is maximized.

However, Novak teaches an image focusing method, wherein a captured image is divided in a plurality of regions, wherein the image regions are compressed and corrected to be integrated in a single image having an increased depth of field (Page 2, ¶ 0038; page 4, ¶ 0061-0066; page 7, ¶ 0088-0089).

Therefore, taking the combined teaching of Yamasaki in view of Novak as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yamasaki by compressing a digital image corresponding to each region. The motivation to do so would help to minimize the amount of data stored in the system memory.

The combined teaching of Yamasaki in view of Novak does not teach recording the relative size of the compressed image for each region and adjusting to perform focusing.

However, Katsuki teaches a method comprising: capturing at least a portion of an image (Using CCD in fig. 2: 31) in a field of view to provide a digital image; digitally compressing the digital image (Using MPEG Video Processor shown in fig. 2: 44) to provide a compressed file having a file size; and providing a focus accuracy parameter, the focus accuracy parameter (See step S23 in fig. 8) derived from the file size of the

Art Unit: 2612

compressed file (See step S22 in fig. 8) (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19).

Therefore, taking the combined teaching of Yamasaki in view of Novak and further in view of Katsuki as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to record the relative size of the compressed image for each region and adjusting to perform focusing. The motivation to do so would help to perform focusing based on the amount of compress image data as suggested by Katsuki (Col. 4, lines 14-64; col. 9, line 12 – col. 10, line 19).

### ***Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:00 A.M. to 5:30 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2612

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez  
Examiner  
Art Unit 2612

NDHH  
June 11, 2005

  
AUNG MOE  
PRIMARY EXAMINER